

REMARKS/ARGUMENTS

Claims 1-26 are pending and stand rejected in the above-captioned patent application. The proposed amendments to the application and the comments in the office action regarding claims 1-26 are now addressed in turn.

Claim Objections

The examiner objected to Claims 1-26 for being improper because they had periods within the body of the claims. Applicants have addressed the objection by changing the periods to parentheses as shown in the Listing of Claims.

Claim Rejections Under 35 USC § 112 2nd Paragraph

Claims 1-26 were rejected under 35 USC § 112 as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants have amended claims 1, 9, 11 and 12 herein. Accordingly, the instant rejection is rendered moot and Applicants respectfully request the withdrawal of the rejection.

In Claim 1, the word "on" was added to clarify the subject matter that the Applicant regards as the invention. In addition, in Claims 1 and 9 the antecedent basis for "step c)" was addressed by the changes Applicant made to address the claim objections above. Further, the phrase "genetic DNA" in Claims 11 and 12 was changed to "genomic DNA", a phrase which has proper antecedent basis in Claim 1.

Claim Rejections Under 35 USC § 102

Claims 1, 6, 10, 13-14, 17-18 and 23 were rejected under 35 USC § 102 as allegedly being anticipated by Patil et al. (23 NOV 01). Applicants respectfully traverse the rejection.

In order for a reference to anticipate a claimed invention under 35 USC § 102(b), the reference must teach each and every element of the claimed invention within its four corners. Applicants respectfully submit that the Patil et al. reference fails to anticipate the claimed invention for the reasons noted below. Claim 1 is directed to a method for performing genetic analysis comprising "(c) for at least said genomic variants that occur in a plurality of individuals, but not all of said at least 10,000 bases, scanning genomic DNA or derivatives therefrom from additional

individuals to identify which of said genetic variants occur in said additional individuals; and d) based on the results of step c), identifying blocks of said variants.” Patil et al. does not describe scanning only a subset (“not all of said at least 10,000 bases”) of the genomic DNA in additional individuals and using the results to identify blocks of variants. Specifically, Patil et al. does not teach scanning in a second population less than the genomic DNA originally scanned in a first population. Instead, at best, Patil et al. describes defining blocks of variants by scanning genomic DNA using a single population, but there is no mention of scanning a *subset* of the genomic DNA originally scanned in the single population in a second additional population.

Therefore, Patil et al. does not teach all of the elements of the claimed invention and as such cannot anticipate the claimed invention. Accordingly, Applicants respectfully request the withdrawal of the instant rejection of Claim 1, as well as Claims 6, 10, 13-14, 17-18 and 23, which depend from Claim 1.

Claims 1-3, 17-18 and 23 were rejected under 35 USC §102(b) as being anticipated by Chew et al. [WO0104270 (18 JAN 01)]. Applicants respectfully traverse the rejection.

Applicants respectfully submit that the Chew et al. reference fails to anticipate the claimed invention for the reasons noted below. Claim 1 is directed to a method for performing genetic analysis comprising “c) for at least said genomic variants that occur in a plurality of individuals, but not all of said at least 10,000 bases, scanning genomic DNA or derivatives therefrom from additional individuals to identify which of said genetic variants occur in said additional individuals; and d) based on the results of step c), identifying blocks of said variants.” Chew et al. does not describe scanning only a subset (“not all of said at least 10,000 bases”) of the genomic DNA in additional individuals and using the results to identify blocks of variants. Specifically, Chew et al. does not discuss how to identify blocks of variants from the results of scans in additional individuals. Instead, at best, Chew et al. describes how to use polymorphisms to genotype and haplotype additional individuals, but there is no mention of using the polymorphisms to identify blocks.

The Examiner seems to want to equate the “blocks” of the present invention with “blocks of variants” used to produce “genome anthologies” of Chew et al. However, these are two extremely distinct and unrelated entities. For example, a “genome anthology” as described by Chew is a collection of isogenes, and an isogene is defined as “One of the isoforms of a gene found in a population. An isogene contains all of the polymorphisms present in the particular isoforms of the

gene.” As such, the boundaries of a “block of variants” used to produce a genome anthology must necessarily be the boundaries of the gene being analyzed. As described in the specification of the instant application, blocks are “groups of variants...that tend to be inherited together. Such ‘blocks’...have likely arisen from an evolutionary point of view because the edges of blocks will tend to be the boundaries of ancient recombination events in the species.” Hence, the blocks of the present invention are independent of the boundaries of a given gene and are therefore not equivalent to the “blocks of variants” within a given gene that are used to produce a genome anthology according to Chew et al.

Therefore, Chew et al. does not teach all of the elements of the claimed invention and as such cannot anticipate the claimed invention. Accordingly, Applicants respectfully request the withdrawal of the instant rejection of Claim 1, as well as Claims 2-3, 17-18 and 23, which depend, either directly or indirectly, from Claim 1.

In addition, Applicants have amended claims 6 and 10 to further clarify the claimed invention and to correct a minor typographical error. No new matter is being added by virtue of the amendments.

Claim Rejections Under 35 USC § 103

Claims 2, 7-8, 11-12 and 15-16 are rejected under 35 USC § 103 as being unpatentable over Patil et al. (23 NOV 01). The rejection on this basis is respectfully traversed.

In order for a reference or a combination of references to support a *prima facie* case of obviousness, they must (a) disclose all elements of the claimed invention, (b) suggest or motivate one of skill in the art to combine or modify those elements to yield the claimed combination, and (c) provide a reasonable expectation of success should the claimed combination be carried out. The cited reference fails to teach the claimed invention.

Applicants submit that Patil et al. does not disclose all elements of the claimed invention as set forth above, and the Examiner has not presented any argument to overcome the deficiencies in the primary reference. Therefore, since Claims 2, 7-8, 11-12 and 15-16 all depend from Claim 1 and Patil et al. does not teach or make obvious all the elements of Claim 1, Applicants respectfully request withdrawal of the rejection on this basis.

Claims 7-8 were rejected under 35 USC § 103 as being unpatentable over Chew et al. [WO0104270 (18 JAN 01)]. Applicants respectfully traverse the rejection.

Applicants submit that Chew et al. does not disclose all elements of the claimed invention as set forth above, and the Examiner has not presented any argument to overcome the deficiencies in the primary reference. Therefore, since Claims 7-8 depend from Claim 1 and Chew et al. does not teach or make obvious all the elements of Claim 1, Applicants respectfully request withdrawal of the rejection on this basis.

Conclusion

For the reasons set forth above, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. If a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-625-4555.

Respectfully submitted,



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